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ABSTRACT

Understanding about how students make sense of foreign language texts, based on relevant research and theory, can contribute to effective foreign language reading instruction. Both linguistic factors in the target language and native language reading skill development are critical to success in foreign language reading. Linguistic factors affecting native vs. target language reading can include the different codes, relational meanings, organization of discourse, interlanguage or interference, and proficiency. Cognitive factors include the degree of demand made on various cognitive processes, such as visual processing, selection of cues, anticipation of future cues, testing of predictions against subsequent input, and storage of generated ideas and information in long term memory. Affective factors such as anxiety, self-confidence, and motivation particularly influence the goal-setting, process-directing metacognitive component of reading. For the teaching of foreign language reading, this suggests that: (1) direct instruction in specific strategies for word recognition, inference of meaning, and synthesis of meaning in larger text segments may be useful; (2) reading aloud in class should be avoided; (3) teachers should focus on global meaning rather than syntactic and lexical details; (4) pre-reading exercises can improve comprehension; and (5) purposeful reading should be encouraged. (MSE)

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Foreign Language Reading:

Linguistic, Cognitive, and Affective Factors Which Influence Comprehension

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Many students learning a foreign language (FL) experience some degree of frustration when they attempt to comprehend any but the simplest FL texts. This is certainly not surprising, for these students are attempting to map meaning onto structures with which they are not wholly familiar. Not only is their FL vocabulary smaller than their native language (NL) vocabulary, but also the way in which words are put together may often seem strange and illogical. Interference from the native language is common and has been shown to mislead readers when they read FL texts (Cowan, 1976; Hatch, 1974; Muchisky, 1983). Furthermore, background knowledge may be deficient: knowledge of the FL culture, knowledge of FL textual conventions, and knowledge of differences in rhetorical organization of information have been shown to be critically important to the comprehension of FL reading materials (Carrell, 1983a,b; Hudson, 1982; Johnson, 1982; Urquhart, 1984; Wilson, 1973).

But students' difficulties in reading in a foreign language are not only a matter of insufficient language skill or background knowledge. FL reading involves cognitive demands beyond those present in native language reading (Yorio, 1971). Attention and memory resources are often needed in lower order, word recognition processes, thereby reducing their availability to higher order, interpretive processes. Short term memory is also taxed due to the reader's unfamiliarity with many words and structures. Because of limitations in human attention and memory processing capacity (McLaughlin, Rossman, McLeod, 1983), these additional cognitive demands may account for the observation that good NL readers are often not able to apply their reading skills to the foreign language text (Clarke, 1980).

Greater understanding of how students go about making sense of foreign language texts is needed if we are to provide effective reading instruction programs within the foreign language curriculum. In the pages

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that follow, an interpretation of the processes involved in FL reading will be developed, based on relevant research.

Universal Process Hypothesis

Goodman (1970, 1981, 1985) has hypothesized that the basic process of reading is the same in all languages, involving the formation, testing, modification, and confirmation of hypotheses based on both textual clues and the reader's background knowledge. This view is supported by empirical studies carried out in various languages (e.g., Barrera, 1981; Czicko, 1976; Genessee, 1979; Mott, 1981; Rigg, 1977). This "reading universals" stance would seem to suggest that FL reading involves the transfer and application of established NL reading skills to FL texts, making native language reading skills the prime determining factor in successful FL reading.

Recent research indicates, however, that (1) reading may actually involve different perceptual and learning strategies in different languages (Tzeng and Hung, 1981; Taylor and Taylor, 1983), and (2) FL readers cannot always effectively transfer their native language reading skills to the second language (Clarke, 1979; Elley and Mangubhai, 1983). It appears that linguistic factors *as well as* native language reading skill development are critically important to success in FL reading.

Differences in NL and FL Reading

Linguistic factors

The most obvious and essential differences between reading in ones native language and reading in a foreign language is that the *code* one is dealing with is entirely different. The writing system, lexicon, syntax, and semantic relations of the foreign language may differ greatly from those of the native language, and even in the case of closely related languages it may take a considerable amount of time and study for FL readers to develop the same sense of *familiarity* with the code that they enjoy when reading in their native language.

Understanding relational meaning at the phrase, sentence, and discourse levels is a second area in which the FL reader will likely experience linguistic difficulty. For example, in French, the position of an adjective can determine its meaning: *ma propre chemise* refers to "my own shirt," whereas *ma chemise propre* refers to "my clean shirt." In English, certain words play different grammatical and semantic roles depending on their position within

a phrase. This is what distinguishes a Venetian blind from a blind Venetian, or a Maltese cross from a cross Maltese. Similarly, a sentence's semantic environment can influence how it is interpreted. The meaning of "I married my sister yesterday" may seem scandalously unambiguous as it stands alone, but when it is followed by "My parishioners and I were sorry to see her leave town, but we wished her great joy in her new life" it may take on an entirely different, yet no less reasonable meaning. Because reading depends upon not only lexical but also relational meaning, it is not surprising that so many FL students experience frustration when they stare at a page of FL text replete with penciled-in glosses and are unable to decipher its meaning. Their reading is reduced to word by word analysis, taxing both memory and patience.

A third problematic area for the FL reader is the way in which information is organized in FL discourse. Research has demonstrated the importance of textual organization to recall of information in NL reading (Kintsch and van Dijk, 1978; Meyer, 1975; Rumelhart 1977) and there is evidence that it is also a significant factor in FL reading (Carrell, 1981; Urquhart, 1984).

A fourth linguistic consideration is the influence of the native language on FL reading. While this influence often facilitates comprehension when the reader encounters words, structures, or expressions that have similar equivalents in the native language, several studies suggest that the native language can sometimes interfere with FL processing at the phonological, syntactic, and semantic levels (Cowan, 1976; Hatch, 1974; Muchisky, 1983; Yorio, 1971).

It appears that the learner's proficiency in the foreign language is clearly related to successful FL reading. There is some evidence to suggest, however, that language proficiency alone does not account for many of the difficulties experienced by FL readers. In the following section we will briefly consider some of the cognitive factors involved in the reading process which may make FL reading difficult.

Cognitive Factors

Reading in any language is a cognitively demanding process, involving the coordination of attention, memory, perceptual processes, and comprehension processes. All readers, whether in a native or non-native language, must divide their available mental energy among at least five processes: (1) the visual processing of surface features of the text, (2) the selection of cues from this input, and the storage of cues in working memory, (3) the anticipation of future cues (based on stored cues and background knowledge), (4) the testing of predictions against subsequent input, and (5) the storage of generated ideas and information in long term memory. For the

mature, fluent, native language reader these processes generally occur automatically. Reading in a foreign language, however, places additional demands on all of these components, making text processing and comprehension less efficient.

It has been shown that FL readers often process texts in a "bottom-up" manner, relying heavily on surface structure features of texts in their attemps to piece together the author's intended meaning (Czicko, 1980; Hatch, 1974; Henning, 1973; McLeod and McLaughlin, 1986; Muchisky, 1983). There is also some evidence to support the hypothesis that FL reading places a greater load on mental processing than does NL reading, and that conscious attention is required to process much of the FL visual input (Bruder and Henderson, 1986; Edfeldt, 1960; Faaborg-Anderson and Edfeldt, 1958; Oller and Tullius, 1973).

Research in information processing supports a "time sharing" model of processing (Lesgold and Perfetti, 1978) in which executives schemes (which establish goals and task organization) determine what input receives attentional focus and what input remains on the periphery of attention (McLaughlin, et al., 1983). Commitment of attention to one operation reduces the availability of attention to the performance of any other operation (Norman and Bobrow, 1975; Posner and Snyder, 1975). Therefore if excessive attention is focussed on word recognition, comprehension may suffer due to a deficiency in available mental resources. Britton et al. (1978) found that in skilled readers the perceptual stage of processing does not use cognitive capacity, but that the "elaborative" processes involved in comprehension do. This suggests a hierarchical organization of reading processes in terms of their relative cognitive demands, with analysis, synthesis, and inference requiring the most mental energy and word recognition the least. This hierarchy is often upset in the case of the FL reader, however, because word recognition processes require much greater attention until they become automatized.

Because the FL reader tends to rely on bottom-up processing (and because much of the visual input he or she perceives is relatively or even completely unfamiliar), the "chunking" or combining strategies which are used automatically in the native language may be rendered inoperable when reading FL texts. When chunking is impeded, less information can be stored at one time in short term memory. When the amount of information which can be stored simultaneously is reduced, there is a restriction of the amount of linguistic data which can be analyzed at once—resulting in less efficient use of redundancy and contextual cues. For example, while a native French speaker might likely analyze *Est-ce qu'il a eu tort*? ("Was he wrong?") as two

chunked units "*Est-ce que*" (interrogative marker) and "*il a eu tort*" (proposition), the inexperienced FL reader is likely to chunk into smaller, lexical units ("*Est*" "*ce*" "*que*" "*il*" "*a*" "*eu*" "*tort*") which consists of seven elements. This strategy not only loads short term memory to near-capacity (Miller, 1956), but also works against comprehension since separate semantic analysis of these seven items will not yield the author's intended meaning: the words simply do not make sense when treated as discrete units. This explains the common complaint of beginning FL readers that they "know all the words" but still fail to make sense of a text. Longer sentences than the example cited above would simply not "fit" in short term memory unless chunking of words into phrase units took place. Furthermore, there is evidence that higher order comprehension processes can be impeded by inefficient word access (Lesgold and Perfetti, 1978). That is to say, if excess mental energy is expended in word recognition, there is little or none left for higher order processing and for storage of input in semantically "cued" form. Thus slow phonological processing may reduce the FL reader's ability to comprehend texts, particularly those in which coherence depends upon indirect or inferred antecedence relationships. (Lesgold and Perfetti, 1978:334).

Because the total amount of mental energy available at a given time is limited, the FL reader's concentration on retaining past cues may hamper his ability to make predictions. Likewise, if the reader attempts to predict what lies ahead in the text, past cues may be forgotten. Under these circumstances the hypothesis testing process which Goodman (1970) proposes as a "universal" characteristic of reading operates with less than optimal efficiency if it operates at all. This inefficiency of processing, along with the student's relative lack of familiarity with the FL culture, can often create a sense of frustration, further impeding comprehension. The effect of such frustration as well as other affective factors on the FL reader will be discussed briefly below.

Affective Factors

While all aspects of reading are highly influenced by affective factors such as attitudes, interests, and values (Mathewson, 1976, 1985; Ruddell, 1974; Ruddell and Speaker, 1985), it is the goal-setting, process-directing metacognitive component which is particularly sensitive to such factors as anxiety, self-confidence, and motivation. Anxiety may be experienced when the reader is pressed to perform in a limited period of time, when he must perform a task in a social group (e.g., reading aloud to the class), or when he "must" comprehend material which he perceives to be too difficult (the

predicament of many FL readers). Anxiety may disrupt the normal functioning of the metacognitive component by impeding both the establishment and the implementation of goals, effectively paralyzing the reader's "control center." As Posner and Snyder (1975) point out, information which is charged with emotional significance may intrude upon information being consciously processed. Krashen (1981) discusses the phenomenon in terms of what he calls the "affective filter." When the affective filter is "raised" through anxiety or low self-confidence, input will not be processed at a deep level, and in turn, FL text comprehension will be reduced.

Self-confidence is critical to effective reading in that it determines the reader's willingness to take risks. Reading that is conceptually-driven and meaning-centered demands that the reader take risks, for not *all* of the visual information available in a text is thoroughly processed. Rather, visual information is sampled judiciously, providing just enough cues to confirm predictions and elaborate the reader's text representations. Furthermore, information which is implicit in a text (often the most important information) can only be accessed through inference based on given information and the reader's prior knowledge. Because the FL reader is often insecure about the extent and accuracy of his knowledge of the FL code, the FL culture, and the text itself, the risk of making inferences is often too great. Thus a low level of self-confidence may limit the reader in (1) the goals he sets (e.g., literal comprehension only) and (2) his flexibility in utilizing a variety of strategies. Carrell's (1983c) finding that even advanced ESL students were often unable to grasp more than the literal meaning of a text may indicate students' unwillingness to take chances (due to the unfamiliarity of the topic) as well as insufficient background knowledge. In other words, students may *assume* that they have insufficient background knowledge as a result of low self-confidence and thus may hesitate to make guesses and inferences. In the case of the FL reader this state of affairs may produce a vicious circle of poor comprehension and frustration which may result in termination of FL study (See Figure 1).

Motivation is central to the metacognitive component. When it is absent, limited goals will be established, resulting in limited comprehension. Equally important, though often overlooked, is the fact that motivation affects the level of mental energy available to the reader (Mathewson, 1976; Ruddell and Speaker, 1985). The availability of mental energy is a particularly critical variable in FL reading, due to the high demands placed on cognitive resources by all levels of processing. Mathewson (1976) points out that motivation is not a static, fixed element in the reading process; rather, it may fluctuate during reading according to the reader's understanding and

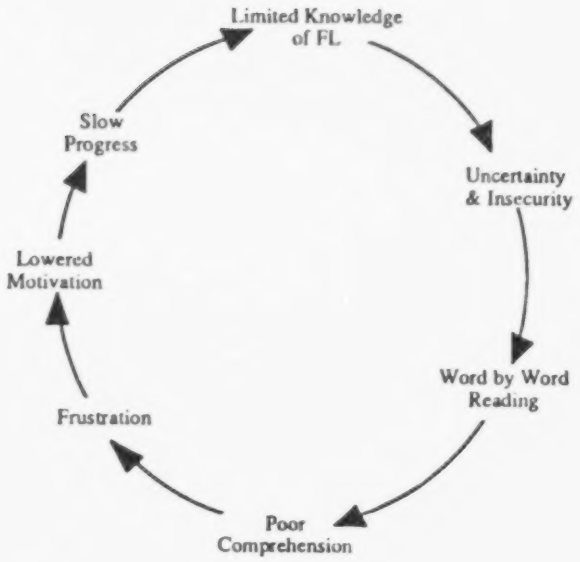

Figure 1

acceptance of what is read. If the content of the reading material is consistent with one's prior attitudes, beliefs, values, and motives then a favorable modification of one's attitude *toward reading* will occur. Corresponding to this modification is a continuation of attentional focus and optimal comprehension. If, however, there is a mismatch between the presented attitudes, beliefs, values and motives and those of the reader a negative reading attitude will develop, with a corresponding reduction in attention and comprehension.

Implications for Practice

As we have seen, FL readers tend to be most attentive to the surface structure of FL texts, and because their word recognition skills do not seem to be automatized until advanced levels of study, they are often not able to allocate sufficient cognitive resources to carry out higher-level interpretive

processes effectively. As a result, comprehension is less than optimal. Because the FL reader continually faces unknown lexical items and syntactic structures, however, mere "practice" may only bring frustration rather than facilitate automatization of recognition skills—particularly if the learner is unable to comprehend what he or she is reading. As Goodman has pointed out, readers will not continue reading if there is no "payoff" in terms of comprehension (1976, p. 484).

What does the foregoing discussion suggest for the teaching of FL reading? First, students may benefit from direct instruction in specific strategies designed to assist them in (1) word recognition, (2) inferring the meaning of unknown words and (3) synthesizing meaning in larger segments of text. Such strategies, if routinized, may allow lower-level processes which originally required large amounts of conscious attention to operate more efficiently. If cognitive resources are released from surface-level processes such as word recognition, more mental energy is made available for meaning-processing. Several studies (e.g., Kern, 1987; Nemoianu 1987) have shown that students trained in the use of metalinguistic and metacognitive strategies show considerable improvement in their ability to infer meanings of unknown words and in their general comprehension of FL texts. Students should also be shown how to use reading strategies flexibly and in combinations (see Kern, 1987).

Second, given that phonological encoding of FL texts generally requires a considerable amount of mental energy, reading aloud in class is probably best avoided, except when the goal is strictly pronunciation practice and not comprehension (Bernhardt, 1983).

Third, because students who read word by word are often unable to capture the sense of a sentence, teachers should encourage students to think about the global meaning of what they read, rather than focusing excessively on the lexical and syntactic details of a text. Recommended activities are those which focus on (1) the development of reading speed, (2) the identification of main ideas, (3) the identification of cohesion and discourse relationships, and (4) the formation of predictions and hypotheses (e.g., the Directed Reading-Thinking Activity, Stauffer, 1969, Tierney et al., 1985).

Fourth, the importance of background knowledge suggests the use of pre-reading exercises designed to "prime" students for what they are about to read. Several research studies (e.g., Hudson, 1982; Lee, 1986) have demonstrated that such activities can significantly improve readers' comprehension of FL texts.

Fifth, because planning and goal-setting are important to reading comprehension, students should be encouraged to read *purposefully*. They

may be provided a purpose by the teacher, such as answering a specific question raised in class discussion, or they may choose their own personal goals. In either case, students need to be flexible in their approach to FL texts: they may need to skim for a gist, scan for a specific detail, read for thorough comprehension, or read for a stylistic analysis. Because reading purposes differ with types of texts, readings should be varied with regard to genre, style, content, and lexical/semantic difficulty. The teacher can adjust the demands of a task according to the level of difficulty and the content characteristics of each passage.

In sum, we have seen that linguistic, cognitive, and affective factors interact in complex ways to influence FL reading comprehension. The sheer complexity of the reading process suggests the need for a broad-based, multisided approach to reading instruction. No single instructional technique is likely to magically transform students into fluent FL readers. At the least, however, the superior reading instruction program will recognize the importance of vocabulary as well as syntax (Barnett, 1986), will attempt to develop both bottom-up (e.g., decoding, word analysis) *and* top-down (e.g., inferencing, gisting) processing strategies, will acknowledge the importance of students' background knowledge, attitudes, and motivation, and will familiarize students with a variety of *types* of texts at varying levels of difficulty. Most importantly, the ideal FL reading instruction program will accurately assess and address the specific needs of the particular students whom it serves. This requires that teachers take an active role in diagnosing the reading behaviors of their students, and formulating specific instructional goals, objectives, and activities based on their understanding of the reading process.

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